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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,916	05/22/2001	Anne M. Mayes	M0925/7087 TJO	9694

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EXAMINER

RUTHKOSKY, MARK

ART UNIT PAPER NUMBER

1745

DATE MAILED: 10/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/862,916

Applicant(s)

MAYES ET AL.

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/25/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 36-60 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

This application is a divisional of US application 09/284,447 filed 6/24/1999, now abandoned, which claims benefit to PCT/US97/18839 filed 10/10/1997.

Election/Restrictions

Applicant's election with traverse of claims 8-35 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the search and examination can be made without serious burden. This is not found persuasive because the applicant has not addressed the issues of distinctness in the restriction and therefore the claims are distinct as shown in the restriction.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

No information disclosure statement has been filed in the application. If a search report for PCT/US97/18839 exists, the examiner requests a copy from the applicant. The published PCT document does not include a search report.

Drawings

The drawings filed on 5/22/2001 have been approved.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8, 10-27 and 29-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Armand et al. (US 5,523,180.)

The instant claims are to a polymer electrolyte comprising a non-cross-linked association of a plurality of block copolymer chains each block copolymer chain including at least one ionically conductive block and at least one second block immiscible with the ionically conducting block; the electrolyte is amorphous and non-glassy through the entire range of about 0-70 °C; the chains have an ordered nanostructure including a continuous matrix of amorphous domains defined by association of ionically conductive blocks providing continuous ionically conductive pathways and amorphous second domains immiscible with the ionically conducting domains defined by association of second blocks.

Armand (5,523,180) teaches a polymer electrolyte which is a block copolymer comprising an ionically conductive block and a second block that is immiscible in the ionically conductive block. The materials may be non-crosslinked or crosslinked (abstract.) The electrolyte is inherently non-glassy and amorphous as it is made of materials of the instant invention, further, col. 1, lines 15-60, show that the combination is known to give an amorphous, conductive electrolyte. The glass temperature range will be inherently the same as the same materials are used in each invention. The chains have an ordered nanostructure including a continuous matrix of amorphous domains defined by association of ionically conductive blocks providing continuous ionically conductive pathways and amorphous second domains immiscible with the ionically conducting domains defined by association of second blocks. Precipitation

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and evaporation methods of forming the electrolytes are noted in the examples. An anion is immobilized on the polymer electrolyte and a counter cation is included (see col. 2, lines 13-65). The anion can be immobilized on either block; for example block A may be polyethylene oxide which incorporates a salt and block B may be a acrylate derivative of ionic groups, (See col. 2, lines 50-65 and col. 5, lines 25-35). The cation will be in the ionically conductive block to balance the charge of the anion. Metal salts are noted, including lithium (col., 5, lines 25-35 and various examples.) Branched polymers with the ionically conductive portion consisting of polyethylene glycols are noted in col. 3, lines 15-65, and various examples. Acrylates and methacrylates are noted in col. 2, lines 10-end. Glycidyl acrylates (fp = -41.5 C) and methacrylates are noted in col. 2, lines 40-50. Polyethylene glycols with monomer weights of up to 20,000 are noted in col. 3, lines 45-end.) From the examples, it also appears that the volume fraction of the ionically conductive block is 0.50 and 0.85, as best understood. A separate electrolyte salt and conductive liquids such as polyethylene glycol and methyl ethers may be added (col. 5, lines 25-45). The weights of the copolymers are on the order of greater than 10^5 (see col. 1, line 33.) The materials are used in lithium batteries. Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 9 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armand et al. (5,523,180.)

Armand (5,523,180) teaches a polymer electrolyte which is a block copolymer comprising an ionically conductive block and a second block that is immiscible in the ionically conductive block as previously described. The reference does not teach the electrolytes to be made by the reduction of temperature of a disordered melt. MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

Armand (5,523,180) does not teach an auxiliary ionic conductor to be polyethylene glycol dimethyl ether, however polyethylene glycols are added to the block copolymer. It would be obvious to one of ordinary skill in the art at the time the invention was made to use polyethylene glycol dimethyl ether as the polyethylene glycols of Armand (5,523,180) as the material will provide the same function as an ionically conductive solvent polymer of the electrolyte. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Examiner Correspondence

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193. Any inquiry

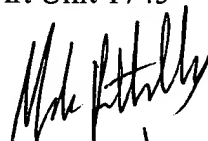
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concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 703-305-0587. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:00.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 703-308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Mark Ruthkosky

Primary Patent Examiner

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10/18/03